



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/633,364 | 08/01/2003 | Anna Chwang | UDC-26601 | 5131 |
| 27774 | 7590 | 08/02/2005 | EXAMINER | |
| MAYER, FORTKORT & WILLIAMS, PC 251 NORTH AVENUE WEST 2ND FLOOR WESTFIELD, NJ 07090 | | | GUHARAY, KARABI | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2879 | |

DATE MAILED: 08/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|---------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/633,364 | CHWANG ET AL. | |
| | Examiner | Art Unit | |
| | Karabi Guharay | 2879 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 06 May 2005.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-32 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-32 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 06 May 2005 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

Amendment, filed on 05/06/2005 has been considered and entered.

Amended drawings are approved and overcome the objection to the drawings.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-4, 6-7, 12-19 & 23-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Araki (US 6621840).

Regarding claims 1, 3-4, 6 &12, Araki discloses an organic light emitting device (See Drawing) comprising a substrate (glass or metal, line 49-50 of column 4) a first electrode (transparent anode electrode, made of ITO), a polymeric layer comprising conductive polymer disposed over the first electrode (not shown, see 15-17 of column 4), a organic region consisting essentially of small molecule material (Alq, lines 11-13 of column 6) and in direct contact with the polymeric layer (lines 4-5 and 15-17 of column 4), a second electrode (cathode electrode) disposed over the organic region and a thin film encapsulation region (not shown, lines 30-32 of column 7).

Regarding claims 7-8, Araki discloses that the substrate is a composite material comprises a polymer substrate (lines 55-59 of column 4), a plurality of f high-density layers and planarizing layers which may be same or different (lines 57-65 of column 2),

and at least three pairs of alternating high density and planarization layers (lines 8-10 of column 3).

Regarding claims 13-19, Araki discloses a multiplayer structure for the organic region comprising a hole injection layer, a hole transport layer, an emission layer a blocking layer and electron transport layer disposed sequentially (lines 1-20 of column 4) and the hole injecting layer comprises small molecule organic metal complex CuPc (lines 23-27 of column 5).

Claims 23-24 recites methods used to form the polymeric layer. However the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 5, 9-11, 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al. as applied to claim 1 above, and further in view of Weaver (US 2003/0085652).

Regarding claims 2, 5 & 26, Araki et al. teach all the limitations of claims 2 ,5 & 26, except for OLED device being flexible and cathode being made of aluminum and lithium fluoride layer.

However, in the same field of OLED, Weaver teaches a flexible OLED device using flexible substrate (see Paragraph 0049) which can be used in various applications for flexibility and also teaches various suitable materials such as aluminum –lithium or aluminum and lithium fluoride layer (see paragraph 0031) for cathode in an organic light emitting device.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a flexible substrate as taught by Weaver, in the device of Heeks so as to obtain a flexible OLED which is highly desirable (paragraph 0051) has various applications for being flexible, and further use Aluminum and lithium fluoride layer as the composition for cathode layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. See MPEP 2144.07.

Regarding claims 9-11,& 25 Araki et al. disclose an encapsulation layer, but is silent about the details of the encapsulation layer.

However, Weaver, in the same field of OLED device, discloses a multilayer region having a plurality of high density layers and a plurality of planarizing layers (222c-221a of Fig 3 over the cathode 246), comprising at least three pairs of alternating high density layer and planarizing layers (paragraph 0057). This type of encapsulation

structure acts as a composite barrier with good resistance to moisture and oxygen penetration (see paragraph 0051), which will protect the OLED.

Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite barrier structure as taught by Weaver, in the device of Araki et al. since this will protect the device from environmental oxygen and moisture.

Regarding claims 27-29, Araki discloses a multilayer structure for the organic region comprising a hole injection layer, a hole transport layer, an emission layer a blocking layer and electron transport layer disposed sequentially (lines 1-20 of column 4) and the hole injecting layer comprises small molecule organic metal complex CuPc (lines 23-27 of column 5).

Regarding claims 20-22 & 30-31, Araki et al. discloses a conductive polymer layer however, does not specify the particular materials, however, poly(3,4-ethylenedioxythiophene) is a well known conductive polymer used in organic light emitting devices, thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use this conductive polymer since selection of known material for known purposes is within the general skill of an worker in the art.

Regarding claim 32, combined structure of Araki et al. & Weaver disclose an organic light emitting device structure comprising a substrate (glass or metal, line 49-50 of column 4) a metal oxide anode (transparent anode electrode, made of ITO), a polymeric layer comprising conductive polymer disposed over the anode (not shown, see 15-17 of column 4), a small molecule hole injection layer disposed over and in

direct contact with the polymeric layer (lines 2327 of column 5) an emissive layer disposed over the hole injection layer, a second electrode (cathode electrode) disposed over the organic region and a thin film encapsulation region (not shown, lines 30-32 of column 7). Weaver discloses a flexible substrate for the OLED and encapsulation region comprising a plurality of high-density layers and a plurality of planarizing layers, may be same or different. Reasons for combining art as in claim 25 applies (see rejection of claim 25).

Response to Arguments

Applicant's arguments filed 05/06/2005 have been fully considered but they are not persuasive.

Regarding prior art Araki et al. applicant contends that Araki et al. does not teach or suggest a thin film encapsulation region to protect OLED. Examiner respectfully disagrees. Araki et al. disclose that protective layer is formed on the outer surface of the cathode (line 32-33 of column 7), and further mentioned that sealing layers are provided on the OLED to prevent from moisture and oxygen. However, Araki discloses further sealant of glass outside the OLED, which means that Araki teaches encapsulation layers on the cathode layer of the OLED as the claimed device, and Araki's device further contains glass sealant on the outer surface of OLED.

Applicant's argument regarding prior art Heeks et al. (US 5965901) is persuasive. The rejections based on Prior art Heeks et al. have been withdrawn.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (571) 272-2452. The examiner can normally be reached on Monday-Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karabi Guharay
Karabi Guharay
Patent Examiner
Art Unit 2879